

10/522366

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SEQUENCE LISTING

<110> National Institute of Advanced Industrial Science and Technology

<120> Lethal gene markers for transformant selection

<130> -23603055

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<160> 24

<170> PatentIn Ver. 2.1

<210> 1

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 1

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28

<210> 2

<211> 57

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

<400> 2

gttaaattcca atttaagtcc cataacttgg ccgctatggc ctcaaagata tttcttg 57

<210> 3

<211> 57

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

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<211> 28

<212> DNA

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<223> Description of Artificial Sequence:primer

<400> 4

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<211> 43

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<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

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<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

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34

<210> 7

<211> 598

<212> DNA

<213> E.coli

<400> 7

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cagaatggtg gtggaaaacg caagcgtgg actggagata aagggcgtaa gatttatgag 180
tgggattctc agcatggtga gcttgagggg tatcgtgccg gtgatggtca gcatcttggc 240
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gataaaagta cagaagattt taagggtgag gagtattcaa aagatttttg agatgacggt 420
tcagttatgg aaagtctagg tgtgcctttt aaggataatg ttaataacgg ttgctttgat 480
gttatagctg aatgggtacc tttgctacaa ccatacttta atcatcaaat tgatatttcc 540
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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

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<210> 9

<211> 46

<212> DNA

<213> E.coli

<400> 9

gcatggccgc ctcggccgta gaaaggtttt aaagattacg ggcattg

46

<210> 10

<211> 49

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

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<210> 11

<211> 52

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

<400> 11

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<210> 12

<211> 55

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 12

gcatggccgc ctcggccgta gtagtagtag aaaggtttta aagattacgg gcatg 55

<210> 13

<211> 58

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 13

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<211> 607

<212> DNA

<213> E.coli

<400> 14

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<210> 15

<211> 258

<212> DNA

<213> E.coli

<400> 15

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aaggataatg ttaataacgg ttgctttgat gttatagctg aatgggtacc ttgctacaa 180
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cgtgatggtg attggtga 258

<210> 16

<211> 3066

<212> DNA

<213> E.coli

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cccgccaaaca catcacgggc cacaaaattt tttgtgcccc gctctgcgtt ttctaagtgt 180
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<210> 17

<211> 551

<212> PRT

<213> E.coli

<400> 17

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1 5 10 15

Ser Gly Asn Ile Asn Gly Gly Pro Thr Gly Leu Gly Val Gly Gly Gly

20 25 30

Ala Ser Asp Gly Ser Gly Trp Ser Ser Glu Asn Asn Pro Trp Gly Gly

35 40 45

Gly Ser Gly Ser Gly Ile His Trp Gly Gly Gly Ser Gly His Gly Asn

50 55 60

Gly Gly Gly Asn Gly Asn Ser Gly Gly Gly Ser Gly Thr Gly Gly Asn

65 70 75 80

Leu Ser Ala Val Ala Ala Pro Val Ala Phe Gly Phe Pro Ala Leu Ser

85 90 95

Thr Pro Gly Ala Gly Gly Leu Ala Val Ser Ile Ser Ala Gly Ala Leu

100 105 110

Ser Ala Ala Ile Ala Asp Ile Met Ala Ala Leu Lys Gly Pro Phe Lys

115 120 125

Phe Gly Leu Trp Gly Val Ala Leu Tyr Gly Val Leu Pro Ser Gln Ile

130

135

140

Ala Lys Asp Asp Pro Asn Met Met Ser Lys Ile Val Thr Ser Leu Pro

145

150

155

160

Ala Asp Asp Ile Thr Glu Ser Pro Val Ser Ser Leu Pro Leu Asp Lys

165

170

175

Ala Thr Val Asn Val Asn Val Arg Val Val Asp Asp Val Lys Asp Glu

180

185

190

Arg Gln Asn Ile Ser Val Val Ser Gly Val Pro Met Ser Val Pro Val

195

200

205

Val Asp Ala Lys Pro Thr Glu Arg Pro Gly Val Phe Thr Ala Ser Ile

210

215

220

Pro Gly Ala Pro Val Leu Asn Ile Ser Val Asn Asn Ser Thr Pro Ala

225

230

235

240

Val Gln Thr Leu Ser Pro Gly Val Thr Asn Asn Thr Asp Lys Asp Val

245

250

255

Arg Pro Ala Gly Phe Thr Gln Gly Gly Asn Thr Arg Asp Ala Val Ile

260

265

270

Arg Phe Pro Lys Asp Ser Gly His Asn Ala Val Tyr Val Ser Val Ser

275

280

285

Asp Val Leu Ser Pro Asp Gln Val Lys Gln Arg Gln Asp Glu Glu Asn

290

295

300

Arg Arg Gln Gln Glu Trp Asp Ala Thr His Pro Val Glu Ala Ala Glu

305

310

315

320

Arg Asn Tyr Glu Arg Ala Arg Ala Glu Leu Asn Gln Ala Asn Glu Asp

325

330

335

Val Ala Arg Asn Gln Glu Arg Gln Ala Lys Ala Val Gln Val Tyr Asn

340

345

350

Ser Arg Lys Ser Glu Leu Asp Ala Ala Asn Lys Thr Leu Ala Asp Ala

355

360

365

Ile Ala Glu Ile Lys Gln Phe Asn Arg Phe Ala His Asp Pro Met Ala

370

375

380

Gly Gly His Arg Met Trp Gln Met Ala Gly Leu Lys Ala Gln Arg Ala

385

390

395

400

Gln Thr Asp Val Asn Asn Lys Gln Ala Ala Phe Asp Ala Ala Ala Lys

405

410

415

Glu Lys Ser Asp Ala Asp Ala Ala Leu Ser Ser Ala Met Glu Ser Arg

420

425

430

Lys Lys Lys Glu Asp Lys Lys Arg Ser Ala Glu Asn Asn Leu Asn Asp

435

440

445

Glu Lys Asn Lys Pro Arg Lys Gly Phe Lys Asp Tyr Gly His Asp Tyr

450

455

460

His Pro Ala Pro Lys Thr Glu Asn Ile Lys Gly Leu Gly Asp Leu Lys

465

470

475

480

Pro Gly Ile Pro Lys Thr Pro Lys Gln Asn Gly Gly Gly Lys Arg Lys

485

490

495

Arg Trp Thr Gly Asp Lys Gly Arg Lys Ile Tyr Glu Trp Asp Ser Gln

500

505

510

His Gly Glu Leu Glu Gly Tyr Arg Ala Ser Asp Gly Gln His Leu Gly

515

520

525

Ser Phe Asp Pro Lys Thr Gly Asn Gln Leu Lys Gly Pro Asp Pro Lys

530

535

540

Arg Asn Ile Lys Lys Tyr Leu

545

550

<210> 18

<211> 110

<212> PRT

<213> E.coli

<400> 18

Ala Glu Asn Asn Leu Asn Asp Glu Lys Asn Lys Pro Arg Lys Gly Phe

1

5

10

15

Lys Asp Tyr Gly His Asp Tyr His Pro Ala Pro Lys Thr Glu Asn Ile

20

25

30

Lys Gly Leu Gly Asp Leu Lys Pro Gly Ile Pro Lys Thr Pro Lys Gln

35

40

45

Asn Gly Gly Gly Lys Arg Lys Arg Trp Thr Gly Asp Lys Gly Arg Lys

50

55

60

Ile Tyr Glu Trp Asp Ser Gln His Gly Glu Leu Glu Gly Tyr Arg Ala

65

70

75

80

Ser Asp Gly Gln His Leu Gly Ser Phe Asp Pro Lys Thr Gly Asn Gln

85

90

95

Leu Lys Gly Pro Asp Pro Lys Arg Asn Ile Lys Lys Tyr Leu

100

105

110

<210> 19

<211> 97

<212> PRT

<213> E.coli

<400> 19

Lys Gly Phe Lys Asp Tyr Gly His Asp Tyr His Pro Ala Pro Lys Thr

1 5 10 15

Glu Asn Ile Lys Gly Leu Gly Asp Leu Lys Pro Gly Ile Pro Lys Thr

20 25 30

Pro Lys Gln Asn Gly Gly Gly Lys Arg Lys Arg Trp Thr Gly Asp Lys

35 40 45

Gly Arg Lys Ile Tyr Glu Trp Asp Ser Gln His Gly Glu Leu Glu Gly

50 55 60

Tyr Arg Ala Ser Asp Gly Gln His Leu Gly Ser Phe Asp Pro Lys Thr

65 70 75 80

Gly Asn Gln Leu Lys Gly Pro Asp Pro Lys Arg Asn Ile Lys Lys Tyr

85 90 95

Leu

<210> 20

<211> 330

<212> DNA

<213> E.coli

<400> 1

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caaagcagaa tgggtgtgga aaacgcaagc gctggactgg agataaaggc cgtaagattt 180
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<210> 21

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:adapter

<400> 2

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<210> 22

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:adapter

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<210> 23

<211> 650

<212> DNA

<213> *S.cerevisiae*

<400> 4

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acggttctct cttatgtatt cttegtgac tgactgagge catagcggec 650

<210> 24

<211> 535

<212> DNA

<213> A. oryzae

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